Actions Radar Operators Can Take To Mitigate the Impacts of Wind Farms

In collaboration with the University of Oklahoma/Cooperative Institute for Mesoscale Meteorological Studies, the WSR-88D Radar Operations Center is evaluating operational impacts of current and proposed wind turbine installations on the data and products produced by the WSR-88D network as well as weather forecast and warning performance. Forecasters in NOAA/NWS Weather Forecast Offices can learn to recognize wind farm weather radar signatures; reduce impacts somewhat through proper radar configuration; and attempt to accommodate or "work around" the wind farm impacts in their decision process. For example, forecasters can:

(1) Establish exclusion zones to limit precipitation overestimation or false accumulations. However, exclusion zones do not remove the contamination from the base data.
(2) Invoke clutter suppression. This approach only excludes stationary targets and is not effective on clutter arising from turbine blades in motion.
(3) Look at higher elevations to "see over" wind farms. This can result in the loss of low-altitude information crucial in some forecast situations, e.g., onset of a tornado.

Although operational forecasters can often distinguish wind turbine clutter from weather signals using their experience, a major concern is the effect of these echoes on automated detection algorithms.

More investigation will be conducted to expand our knowledge of wind farms with differing sizes, configurations, and distances.